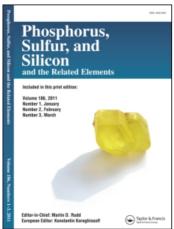
This article was downloaded by:

On: 30 January 2011

Access details: Access Details: Free Access

Publisher Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information: http://www.informaworld.com/smpp/title~content=t713618290

Three New Types of Cyclotriphosphates

A. Durifa; M. T. Averbuch-pouchota

^a Laboratoire de Cristallographie, Centre National de la Recherche Scientifique, Laboratoire associé à l'Université Scientifique, Technologique et Médicale de Grenoble, Grenoble Cedex, France

To cite this Article Durif, A. and Averbuch-pouchot, M. T.(1987) 'Three New Types of Cyclotriphosphates', Phosphorus, Sulfur, and Silicon and the Related Elements, 30: 3, 669

To link to this Article: DOI: 10.1080/03086648708079163 URL: http://dx.doi.org/10.1080/03086648708079163

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.informaworld.com/terms-and-conditions-of-access.pdf

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Three New Types of Cyclotriphosphates

A. Durif and M.T. Averbuch-Pouchot

Laboratoire de Cristallographie, Centre National de la Recherche Scientifique, Laboratoire associé à l'Université Scientifique, Technologique et Médicale de Grenoble, 166 X, 38042 Grenoble Cedex, France.

The present work is more intended to illustrate three very different ways for the preparation of cyclotriphosphates than to describe three new types of such compounds.

$A - Ba_3(P_3O_9)_2.4H_2O$

An additional compound between $BaCl_2$ and $Na_3P_3O_9$ is produced when concentrated solutions of these two salts are mixed. This adduct, not yet clearly characterized, is destroyed by addition of water, leading to $Ba_3(P_3O_9)_2.4H_2O$.

Crystal data

$$a = 16.09(1)$$
 $b = 8.368(5)$ $c = 7.717(3) Å$
 $\beta = 95.38(5)^*$ $Z = 2$ $C2/m$.

Crystal structure with a final R value: 0.038 for 1489 reflextions. Four barium atoms are randomly distributed on a eightfold position.

B - Na₂LiP₃O₉.4H₂O

This salt is observed during preparations of lithium cyclotriphosphate trihydrate, Li₃P₃O₉.3H₂O by ion-exchange resins when the starting solution of sodium cyclotriphosphate is very concentrated.

Crystal data

$$a = 6.905(5)$$
 $b = 9.346(5)$ $c = 876(5)$ Å
 $\gamma = 107.75(5)$ $Z = 2$ $P\bar{\imath}$.

Crystal structure with a final R value: 0.019 for 3778 reflexions. Hydrogen atoms have been located and refined.

C - BaNaP3O9.3H2O

This trihydrate is produced by prolongated standing at 55° of the tetrahydrate in presence of water.

Crystal data

$$a = 7.067(3)$$
 $b = 9.071(3)$ $c = 9.906(4) Å$ $\alpha = 116.46(5)$ $\beta = 95.97(5)$ $\gamma = 74.03(5)$ $Z = 2$ $P\bar{I}$

Crystal structure with a final R value: 0.028 for 3775 reflexions. Hydrogen atoms located and refined.